

What is claimed is:

1. A material shortage simulation management system for calculating quantities of material shortage relating to manufacturing orders, the system comprising:
 - a database for storing data used in procedures of material shortage simulations;
 - a data obtaining unit for obtaining data from the database;
 - a computing unit for calculating material requirement quantities and inventories, and for determining quantities of material shortage; and
 - a judging unit for determining whether it is necessary to purchase material and adjust distributed inventories, and for ascertaining whether material shortage simulations of all materials in a manufacturing order have been finished.
2. The material shortage simulation management system according to claim 1, further comprising a material adjustment unit for allotting distributed inventories to current inventories when material shortages occur.
3. The material shortage simulation management system according to claim 1, wherein the data stored in the database comprise manufacturing orders, current inventory records, distributed inventory records and purchase orders.
4. The material shortage simulation management system according to claim 3, wherein each of the manufacturing orders comprises a plurality of bills of material and production routings.
5. A material shortage simulation management method for calculating quantities of material shortage relating to manufacturing orders, the method comprising the steps of:
 - obtaining a manufacturing order;
 - reading data on a material from a bill of material (BOM) of the

manufacturing order;

calculating a shortage quantity of the material;

determining whether it is necessary to purchase the material;

determining whether it is necessary to adjust a related distributed inventory of the material, if it is not necessary to purchase the material;

allotting the distributed inventory of the material if it is necessary to adjust the distributed inventory;

determining whether material shortage simulations of all materials in the manufacturing order have been finished;

reading data on another material from the BOM if material shortage simulations of all materials have not been finished, and repeating above of the steps accordingly; and

distributing the manufacturing order to one or more corresponding work centers if and when material shortage simulations of all materials have been finished.

6. The method according to claim 5, wherein the step of calculating a shortage quantity of the material comprises a step of calculating a gross requirement quantity and a requirement date of the material.

7. The method according to claim 5, wherein the step of calculating a shortage quantity of the material comprises a step of calculating an available inventory of the material.

8. The method according to claim 5, wherein the step of calculating a shortage quantity of the material comprises a step of calculating a predicted delivery quantity of the material before the requirement date.

9. A material shortage simulation management method for calculating quantities of material shortage relating to manufacturing orders, the method comprising steps of:

- (a) obtaining a manufacturing order;
- (b) checking material related to the order in inventory;
- (c) calculating a shortage quantity of said material in inventory based upon a scheduled production plan of the order;
- (d) if shortage, determining either purchasing the material or reallocating the material, which is currently designated to another manufacturing order, to the order; and
- (e) repeating steps (b)-(d) until all materials related to the order have experienced material shortage simulation.